



Purpose Grown Energy Crop: Camelina sativa

Renewable Fuel Feedstock with Cover Crop Benefits

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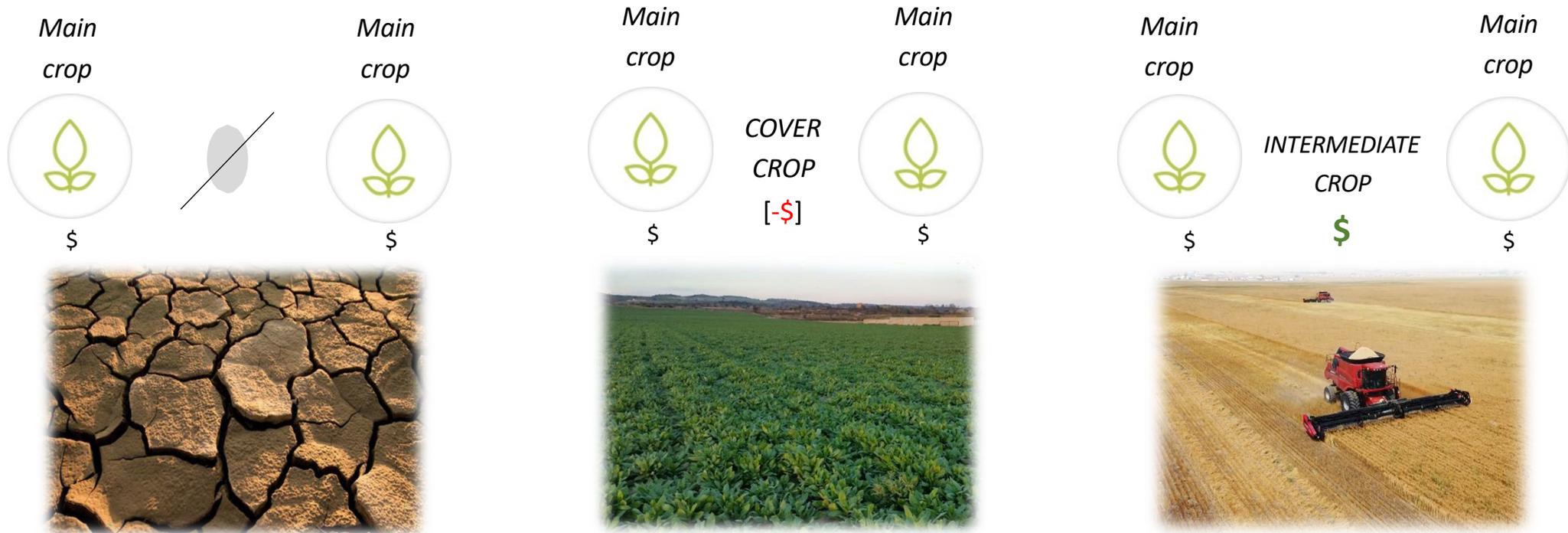
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Feedstock Opportunity – Intermediate Crops

Intermediate crops provide cover crop benefits but can be harvested allowing additional income for growers **and** providing additional renewable fuel feedstock supply.



- Grown between main crops, usually on arable/bare land
- Protect soil from wind and water erosion
- Mitigate the loss of soluble nutrients, such as nitrogen
- Improve the structure of the soil
- Diversify the cropping system

Intermediate Crop: Camelina sativa

Camelina – Protects like a cover crop and pays like a cash crop.

- Camelina is nonfood – Doesn't contribute to the food vs. fuel debate
- Does not result in indirect land use change (ILUC)
- Provides cover crop benefits - reduces erosion and nutrient loss, improves soil health and permeability
- Short season - able to fit between two primary crops without displacing them
- Low water use
- Cold tolerant
- Harvested using farmers' existing equipment
- High oil content
- Provides growers with additional revenue on otherwise idle acres



Camelina has the potential to receive the lowest carbon intensity (CI) score of available feedstocks on the market.

Camelina Renewable Diesel (RD) qualifies for the **RFS, BTC** and California's **Low Carbon Fuel Standard (LCFS)** renewable incentive programs, as well as European programs such as **REDII**

- Camelina-based RD has an estimated carbon intensity (CI) Score of ~24 (without meal credit) and **~7 (with meal credit).**

Camelina
~ **7g/MJ**

Canola
~ **52g/MJ**

Soy
~ **60g/MJ**

Traditional Diesel
~ **100g/MJ**

USDA Climate-Smart Commodities Grant – Climate-Smart Camelina

Global Clean Energy was awarded a \$30 million USDA Climate-Smart Commodities Grant to study camelina

- Study will focus on **increasing overall soil health, increasing the total carbon sequestered and decreasing the carbon intensity** from growing camelina.

Conclusion

Intermediate crops like camelina can fill renewable fuel feedstocks supplies responsibly.

Needs:

- Intermediate Crop incentives
 - Mechanisms to get growers to change agronomic practices and adopt Intermediate Crops into their rotations
- Crop insurance
- Grower education and promotion

Together with other traditional renewable fuel feedstocks like soy, corn, tallow and other waste products, intermediate crops can play a valuable role in ensuring soil health, developing cleaner fuels, and helping advance rural agricultural economies.